

In the claims:

1. (Amended) Method for separating difluoromethane from a mixture of said difluoromethane and at least one impurity, said method comprising the steps of:  
extractively distilling said mixture using dichloromethane as ~~the~~an extractive agent to  
produce recover an overhead product stream of purified difluoromethane  
having a concentration of said at least one impurity lower than that of said  
mixture, and at least one extractive agent stream comprising a mixture of said  
at least one impurity and dichloromethane; and  
supplying at least a portion of said extractive agent stream to a fluorination reaction  
which produces said difluoromethane.
2. (Cancelled)
3. (Amended) The method of claim 1, wherein said at least one extractive agent stream  
comprises the step of extractively distilling produces a side stream and a bottoms stream, said  
side stream comprising a mixture of dichloromethane and said at least one impurity, said  
bottoms stream comprising dichloromethane and a concentration of said at least one impurity  
less than that of said side stream; and wherein step of supplying at least a portion of said  
extractive agent stream to a fluorination reaction ~~said method further comprises the step of:~~  
supplying at least a portion of said side stream to said a fluorination reaction ~~which produces~~  
~~said difluoromethane.~~
4. (Original) The method of claim 1, wherein said impurity is a chlorinated impurity  
having the formula:  
$$\text{CH}_w\text{Cl}_y\text{X}_z$$
  
wherein each X is an independently selected halogen,  $y \geq 1$  and  $w+y+z=4$ .
5. (Original) The method of claim 4, wherein X is fluorine.

6. (Original)The method of claim 4, wherein said chlorinated impurity is selected from the group consisting of chlorofluoromethane, chloromethane, chlorodifluoromethane, dichlorodifluoromethane and combinations of two or more thereof.
7. (Original)The method of claim 6, wherein said chlorinated impurity is selected from the group consisting of dichlorodifluoromethane, chloromethane and combinations thereof.
8. (Amended)The method of claim 3, wherein the concentration of impurity in the recovered difluoromethane~~HFC-32~~ is no greater than about 50 ppm by weight.
9. (Original)The method of claim 8, wherein the concentration of impurity in the recovered HFC-32 is no greater than about 10 ppm.
10. (Amended)The method of claim 3, wherein the yield of HFC-32 is no less than about 80%.
11. (Amended)The method of claim 3, wherein the step of extractively distilling is conducted at a pressure of about 1 to about 15 bars.
12. (Withdrawn)A method for preparing a fluorinated compound comprising the steps of:  
fluorinating a chlorinated organic compound to produce a reactor stream comprising a mixture of a fluorinated compound and at least one impurity;  
feeding said mixture to a distillation unit;  
feeding an extractive agent to said distillation unit, wherein said extractive agent is said chlorinated organic compound;  
operating said distillation unit under conditions sufficient to distill a product stream comprising said fluorinated compound and a concentration of said impurity less than that of said reactor stream;  
withdrawing a side stream from said distillation unit, said side stream comprising said impurity and said extractive agent;

withdrawing a bottoms stream from said distillation unit, said bottoms stream comprising said extractive agent and a concentration of said impurity less than that of said side stream;  
supplying the fluorination reaction with at least a portion of said side stream; and  
recycling at least a portion of said bottoms stream to said distillation unit.

13. (Withdrawn) The method of claim 12, wherein said extractive agent is selected from the group consisting of dichloromethane, trichloroethylene, tetrachloroethylene, and 1,1,1,3,3-pentachloropropane.

AJ 14. (Withdrawn) The method of claim 12, where said fluorinated compound is selected from the group consisting of difluoromethane, 1,1,1,2-tetrafluoroethane, pentafluoroethane, and 1,1,1,3,3-pentafluoropropane.

15. (Withdrawn) The method of claim 12, wherein said extractive agent is dichloromethane and said fluorinated compound is difluoromethane.

16. (Withdrawn) The method of claim 12 wherein the step of extractively distilling is conducted at a pressure of about 1 to 15 bars.

17. (Withdrawn) A system for the preparation of a fluorinated compound comprising:  
a reactor adapted to receive a chlorinated organic compound from at least one source and a fluorination agent for fluorinating said chlorinated organic compound, said reactor adapted to facilitate fluorination of said chlorinated organic compound and to produce a reactor stream comprising a mixture of a fluorinated compound and an impurity;  
a first conduit for feeding said mixture to a distillation unit;  
a distillation unit configured to receive said mixture and an extraction agent from at least one source, said distillation unit being adapted to facilitate extractive distillation of said mixture to produce an overheads stream, a side stream, and a bottoms stream, said overheads stream comprising said fluorinated